IN THE CLAIMS:

The following claims will replace all prior versions of claims in this application.

1. (Previously Presented) A method for determining a deviation of at least one regulating variable on a chip removal machine with a mechanical drive for a tool or a workpiece or a combination thereof, regulated by a control system, wherein the regulation comprises a plurality of values C, X, Z of at least three spatial axes c, x, z for the control system and for the drive, and the values C, X, Z have a functional relation f_{bi} with the axes c, x, z, comprising the steps of:

a) preparing a protocol from a plurality of control system actual values detected by measuring means or selected drive actual values or combinations thereof,

b) calculating a control system nominal value $Z_{bi,s} = f_{bi} (C_{p,s}, X_{p,s})$ or a drive nominal value $Z_{bi,a} = f_{bi} (C_{p,a}, X_{p,a})$ or a combination thereof at least in relation to the z-axis, and

c) calculating a control system differential value $D_{z,s} = Z_{p,s} - Z_{bi,s}$ or a drive differential value $D_{z,a} = Z_{p,a} - Z_{bi,a}$ or combinations thereof at least in relation to the z-axis.

2. (Previously Presented) The method according to claim 1, wherein at least for the drive and the z-axis a contouring differential value

$D_{z,a}^{\varphi} = Z_{p,a} - Z_{bi,a}^{\varphi}$ is determined

with

$Z_{bi,a}^{\varphi} = f_{bi} (C_{p,a} + \Delta\varphi, X_{p,a})$,

where the value $\Delta\varphi$ corresponds to a phase shift of the c-axis, which results in a torsion of generated lens contour.

3. (Previously Presented) The method according to claim 2, wherein the phase shift $\Delta\varphi$ is between 0.5° and 3°, and the determination of $Z_{bi,a}^{\varphi}$ is done between + $\Delta\varphi$ and -$\Delta\varphi$ with an increment between 0.05° and 0.2°.

4. (Previously Presented) The method according to claim 2, wherein one computes, at least from the differential values $D_{z,s}$, $D_{z,a}$ or the contouring differential value $D_{z,a}^{\varphi}$ or a combination thereof at least for the z-axis, one peak-to-valley value for the control system

$$D_{z,s,ptv} = D_{z,s,max} - D_{z,s,min}$$

and peak-to-valley values for the drive

$$D_{z,a,ptv} = D_{z,a,max} - D_{z,a,min},$$

$$D_{z,a}^{\varphi}{}_{ptv} = D_{z,a,max}^{\varphi} - D_{z,a,min}^{\varphi},$$

where $D_{z,s/a,min}$ corresponds to minimum and $D_{z,s/a,max}$ to maximum differential values of respective measurements and $D_{z,a,max}^{\varphi}$, $D_{z,a,min}^{\varphi}$ corresponds to a respective position φ, $+\Delta\varphi$ and $-\Delta\varphi$ of the c-axis, taking into account $+/-\Delta\varphi$.

5. (Previously Presented) The method according to claim 1, wherein one determines an error differential value

$$D_{z,a}^{f} = Z_{p,a} - Z_{bi,a}^{f}$$

with

$$Z_{bi,a}^{f} = f_{bi}\ (C_{p,s}, X_{p,s})$$

at least for the drive and at least in relation to the z-axis.

6. (Previously Presented) The method according to claim 1, wherein the function f_{bi} is a 3D bicubic surface spline or a spiral spline or a combination thereof.

7. (Previously Presented) The method according to claim 4, wherein the differential values $D_{z,a}$, $D_{z,s}$, the contouring differential value $D_{z,a}^{\varphi}$, the respective peak-to-valley values $D_{z,s,ptv}$, $D_{z,a,ptv}$, $D_{z,a}^{\varphi}{}_{ptv}$ or the actual values $Z_{p,s}$, $Z_{p,a}$ of at least the z-axis or combinations thereof are represented, and at least one or more of the representation of $D_{z,s,ptv}$, $D_{z,a,ptv}$, and $D_{z,a}^{\varphi}{}_{ptv}$ is done with the smallest possible peak-to-valley value.

8. (Previously Presented) The method according to claim 4, wherein the size or the deviation or a combination thereof of at least the peak-to-valley values $D_{z,s,ptv}$,

$D_{z,a,ptv}$, $D_{z,a}^{\varphi}{}_{ptv}$ or the actual values $Z_{p,s}$, $Z_{p,a}$ or a combination thereof is represented in terms of a respective workpiece position.

9. (Previously Presented) The method according to claim 7, wherein one distinguishes optically between negative and positive values when representing the differential value or the contouring differential values $D_{z,a}$, $D_{z,s}$, $D_{z,a}^{\varphi}$ or optically in terms of the magnitude of the values or combinations thereof.

10. (Previously Presented) The method according to claim 7, wherein positive or negative or a combination thereof differential values or contouring differential values $D_{z,a}$, $D_{z,s}$, $D_{z,a}^{\varphi}$ or a combination thereof are optically graduated by different color tones in terms of their magnitude or by different color tone intensities in terms of the magnitude of the values or a combination thereof.

11. (Previously Presented) The method according to claim 7, wherein one provides for a superimposed representation of one or more of the differential value and the contouring differential values $D_{z,a}$, $D_{z,s}$, $D_{z,a}^{\varphi}$ and the actual values $Z_{p,s}$, $Z_{p,a}$, the respective scale being different for the two values.

12. (Currently Amended) The method according to claim 1, wherein one calculates, for one or more other axes x, c, nominal values C_{bi}, X_{bi}, differential values $D_{x/c,a}$, $D_{x/c,s}$, peak-to-valley values $D_{x/c,a,ptv}$, $D_{x/c,a}^{\varphi}{}_{ptv}$, $D_{x/c,s,ptv}$, $D_{x/c,s}^{\varphi}{}_{ptv}$, one or more of error differential values $D_{x/c,a}^{f}$, $D_{x/c,s}^{f}$ and **[[the]]** contouring differential values $D_{x/c,s}^{\varphi}$, $D_{x/c,a}^{\varphi}$, or a combination thereof for the control system or for the drive or a combination thereof.

13. (Previously Presented) The method according to claim 2, wherein one provides for a correction cut, in addition to a main cut and an optional precision cut during a chip removal machining of the workpiece, at least making use of the differential values $D_{z,a}$, $D_{z,s}$, $D_{z,a}^{\varphi}$.

14. (Previously Presented) The method for a chip removal machine for the production of optical lenses from plastic according to claim 1.

15. (Previously Presented) The method according to claim 1, wherein one converts the values C, X, Z of the axes c, x, z into a Cartesian system of coordinates or into a polar system of coordinates.

16. (Previously Presented) The method according to claim 1, wherein one starts from a theoretical cutting point of an ideal point-like tool and convert the values C, X, Z of the axes c, x, z for use of a circular carbide tip, with the circular carbide tip having a center point corresponding to the theoretical cutting point.

17. (Previously Presented) The method according to claim 2, wherein one uses at least one differential value $D_{z,a}$ or one contouring differential value $D_{z,a}^{\varphi}$ or a combination thereof as an exclusion criterion for the control system's actual values ($C_{p,s}$, $X_{p,s}$, $Z_{p,s}$) or as an adjustment criterion or a combination thereof for various machine parameters and the machine's control system.

18. (Currently Amended) A chip removal machine comprising: a mechanical drive for a tool or a workpiece or a combination thereof, regulated by a control system, wherein the regulation comprises a plurality of values C, X, Z of at least three spatial axes c, x, z for the control system and for the drive, wherein the values C, X, Z have a functional relation f_{bi} with the axes c, x, z, wherein ~~a method is used~~ the control system [[to]] determines the deviation of the regulating variables~~, and wherein the method comprises the steps of~~ by a) preparing a protocol from a plurality of control system actual values ($C_{p,s}$, $X_{p,s}$, $Z_{p,s}$) detected by measuring means or selected drive actual values ($C_{p,a}$, $X_{p,a}$, $Z_{p,a}$) or a combination thereof,

b) calculating a control system nominal value $Z_{bi,s} = f_{bi}\ (C_{p,s}, X_{p,s})$ or a drive nominal value $Z_{bi,a} = f_{bi}\ (C_{p,a}, X_{p,a})$ or a combination thereof at least in relation to the z-axis, and

c) calculating a control system differential value $D_{z,s} = Z_{p,s} - Z_{bi,s}$ or a drive differential value $D_{z,a} = Z_{p,a} - Z_{bi,a}$ or combinations thereof at least in relation to the z-axis.

19. (Currently Amended) The chip removal machine according to claim **[[17]]** 18, wherein an output unit is provided for a representation of the values, and wherein the function f_{bi} is a 3D bicubic surface spline or a spiral spline or a combination thereof.